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Policy Statement

Water Quality Control in Distribution Systems

AWWA strongly supports planning, design, operation, and maintenance practices that maintain high water quality as the water travels through the transmission and distribution system. Protecting and maintaining water quality from the source to the tap requires use of many protective barriers. The distribution system represents the last barrier of the multiple-barrier concept; therefore making it a key to maintaining a safe and high water quality.

Health regulations have placed increasing emphasis on monitoring and maintaining quality in the distribution and storage systems through to the customers' taps. Regulations and parameters relating to disinfectant residuals; microorganisms, including coliform and heterotrophic plate counts; disinfection by-products; metal release and uptake; color; and taste and odor apply to the distribution system, and utilities need to optimize their practices to balance competing demands. To this end, AWWA supports the following water quality maintenance practices:

- Production of high water quality for introduction into the distribution system that is biologically and chemically stable, does not precipitate mineral constituents, does not corrode the conveyance and storage systems, and does not cause excessive encrustations.
- Maintenance of an appropriate, detectable disinfectant residual throughout the distribution system consistent with current regulations.
- Maintaining a positive pressure throughout the distribution system under all conditions and at all times.
- Timely and comprehensive system monitoring to anticipate, detect, and solve water quality problems.
- Flushing of water mains to remove accumulated sediments or stagnant water from the distribution system.
- Planned valve operations and exercising programs to minimize flow changes that disturb sediments and encrustations capable of adversely affecting water quality.
- Active biofilm control programs to minimize regrowth of microorganisms in pipes and storage, while considering the effects of such programs on other quality parameters.
- Planned mixing and blending of water sources within the distribution system to preclude aesthetic problems for the customer.
- Covering of open finished water storage reservoirs.
- Design and operation of mains and storage reservoirs to minimize water quality deterioration.
- Regular monitoring, sanitary inspections, and maintenance of storage reservoirs.
- Design and operation of the distribution system to preclude dead ends and excessive detention times.
- Cleaning and lining and/or replacement of water mains or application of corrosion control measures to minimize aesthetic and microbiological problems.
- An active oversight program for lead control in the distribution system.
- Use of materials in contact with drinking water that comply with the national standards for health effects (such as ANSI/NSF Standards 60 and 61) and do not act as any energy or food source for microbiological regrowth in the system.

- Maintaining sanitary conditions and implementing appropriate disinfection procedures during repair of pipeline breaks and during other maintenance activities and during installation of new mains.
- Support for the lead ban and the use of lead-free faucets and fixtures to minimize metal contamination at the customer's tap.
- Implementation of active backflow prevention programs.
- Control of water use by parties external to the water utility, such as contractors and fire, parks, and streets officials, to prevent unauthorized operations of hydrants and other points of withdrawal that may cause pressure fluctuations and surges, disturbing particles in pipelines, or that may result in cross connections.